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**Rule CIC322:** A large percent of structure requests were timed out by CF

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**Finding:** The CICS Shared Temporary Storage Queue Server statistics showed that a large percent of structure requests were timed out by the coupling facility.

**Impact:** This finding has a LOW IMPACT or MEDIUM IMPACT on the performance of the CICS region.

**Logic flow:** This is a basic finding, based on an analysis of the data. The finding applies only with CICS/Transaction Server for OS/390 or for z/OS.

**Discussion:** Shared temporary storage queues are stored in named pools in an MVS coupling facility. A shared TS pool consists of an XES list structure, which is accessed through a cross-memory queue server region.

Some list structure commands can complete prematurely, because the request exceeded the coupling facility model-dependent time-out criteria (Return and Reason Code equate symbol IXLRSNCODETIMEOUT). These list structure commands are:

```
IXLLIST REQUEST=DELETE_ENTRYLIST
IXLLIST REQUEST=DELETE_MULT
IXLLIST REQUEST=DEQ_EVENTQ
IXLLIST REQUEST=LOCK
IXLLIST REQUEST=MONITOR_EVENTQ
IXLLIST REQUEST=MONITOR_SUBLISTS
IXLLIST REQUEST=READ_LIST
IXLLIST REQUEST=READ_MULT
IXLLIST REQUEST=WRITE
IXLLSTC -- XES List Structure Control Services
IXLLSTE -- XES List Structure Single Entry Services
IXLLSTM -- XES List Structure Multiple Entry Services
```

When list structure commands complete prematurely, the application typically restarts the command (using information has been returned in the answer area). Commands that complete prematurely cause unnecessary overhead in the coupling facility and in the application.

Shared temporary storage queue server statistics for the coupling facility are available in MXG file CICXQ1. CPExpert uses data in CICXQ1 to calculate the percent of requests that timed out, using the following algorithm:

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$$\text{Percent requests that timed out} = \frac{S1RSP2CT}{S1RSP1CT + \text{Abnormal responses}}$$

where S1RSP1CT = Number of normal responses  
 S1RSP2CT = Number of requests that timed out  
 Abnormal = S1RSP2CT + S1RSP3CT + S1RSP4CT +  
 S1RSP5CT + S1RSP6CT + S1RSP7CT +  
 S1RSP8CT

S1RSP3CT = Specified entry not found  
 S1RSP4CT = Version check failed for entry being updated  
 S1RSP5CT = List authority comparison failed  
 S1RSP6CT = Maximum list key reached  
 S1RSP7CT = List structure was out of space  
 S1RSP8CT = Other IXLLIST return code occurred

CPEXpert produces Rule CIC322 when the percent requests that timed out is greater than the value specified by the **TSPCTTIM** guidance variable in USOURCE(CICGUIDE). The default value for the **TSPCTTIM** is 1 indicating that CPEXpert should produce Rule CIC322 whenever more than one percent of the requests timed out because the request exceeded the coupling facility model-dependent time-out criteria.

**Suggestion:** If this finding is produced, you should consider the following alternatives:

- Review application use of shared temporary storage pools to determine whether the IXLLIST commands can be issued with fewer actions against temporary storage entries. For example, the DELETEQ TS command might be issued more frequently to delete a smaller number of entries with each delete.
- Change the TSPCTTIM guidance variable in USOURCE(CICGUIDE) so Rule CIC322 is produced only when you wish to be aware of applications that cause a larger percent of coupling facility time-outs.
- You can specify **%LET TSPCTTIM = 100;** in USOURCE(CICGUIDE) to suppress this finding (the percent requests timed-out cannot be greater than 100), or you can “turn off” the rule using the process described in Section 3 of this User Manual.

**Reference:** z/OS V1R1 *MVS Programming: Sysplex Services Reference*  
 Section 42.0 IXLLIST -- List Services and following sections related to the list structure commands shown on Page 1 of this Rule Description

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*z/OS V1R2 MVS Programming: Sysplex Services Reference*

Section 42.0 IXLLIST -- List Services and following sections related to the list structure commands shown on Page 1 of this Rule Description

*z/OS V1R3 MVS Programming: Sysplex Services Reference*

Section 42.0 IXLLIST -- List Services and following sections related to the list structure commands shown on Page 1 of this Rule Description

*z/OS V1R4 MVS Programming: Sysplex Services Reference*

Section 46.0 IXLLIST -- List Services and following sections related to the list structure commands shown on Page 1 of this Rule Description

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